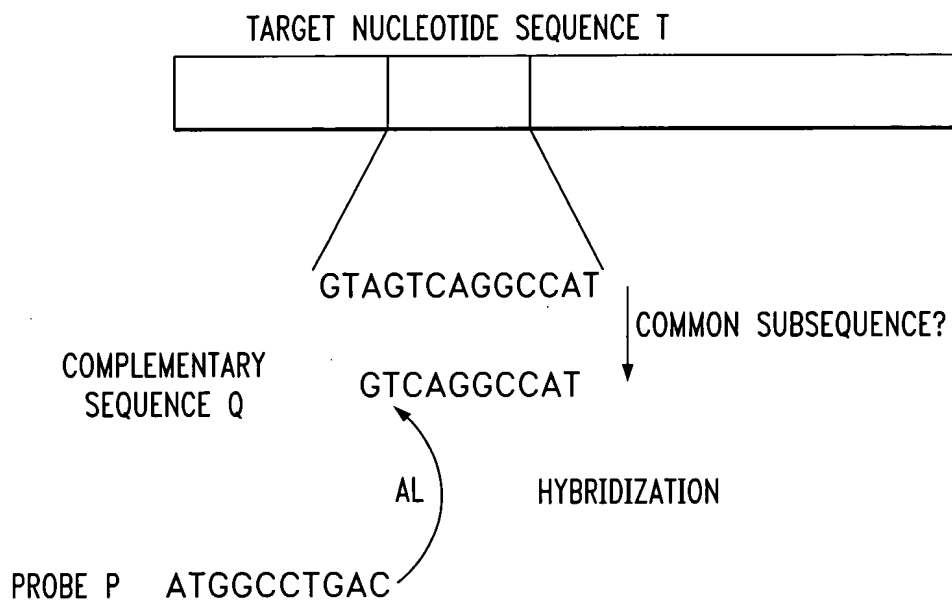




FIG. 1

(a)



(b)

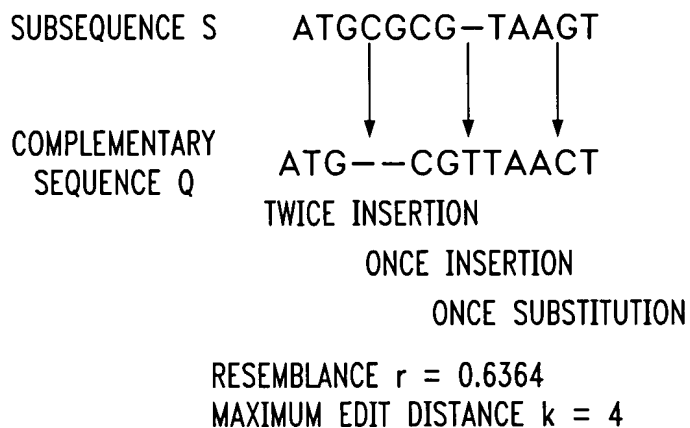


FIG. 2

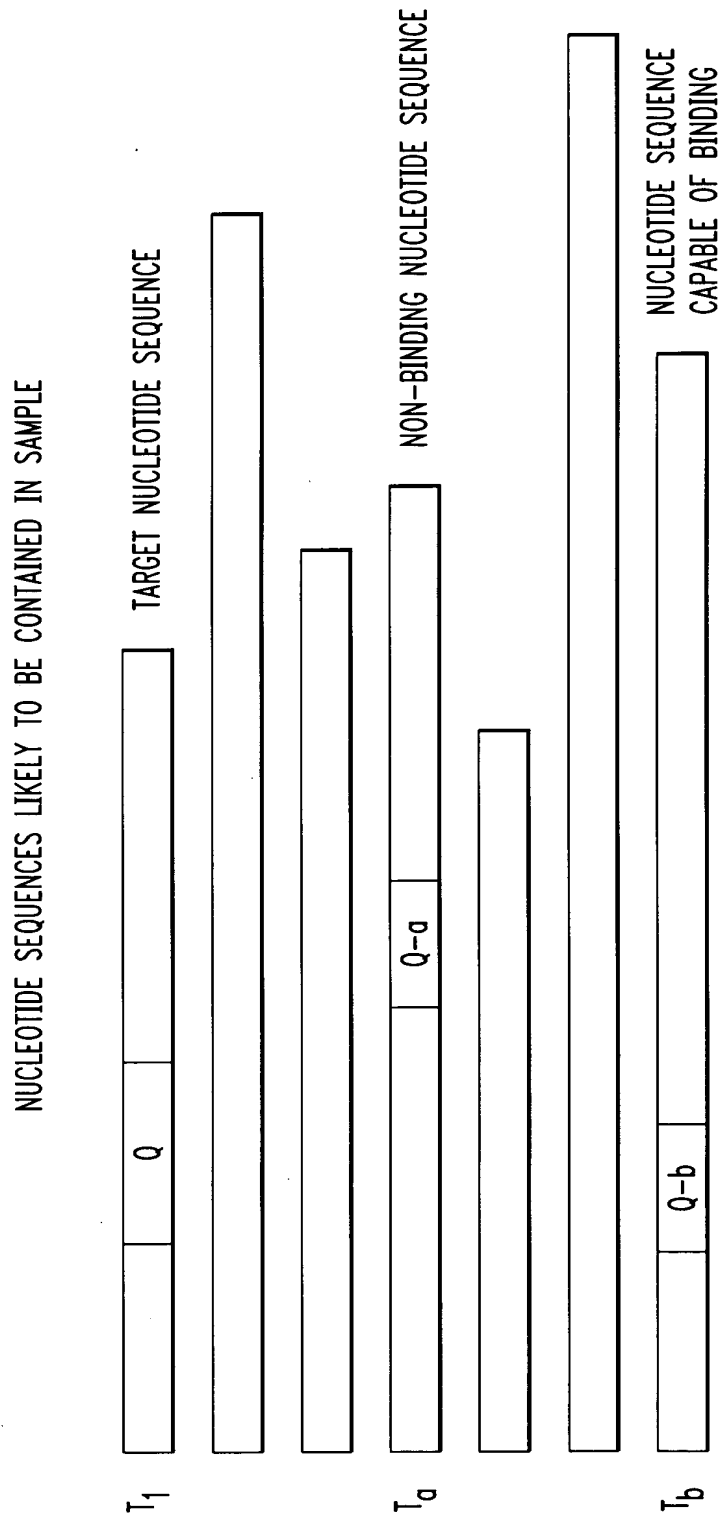


FIG. 3

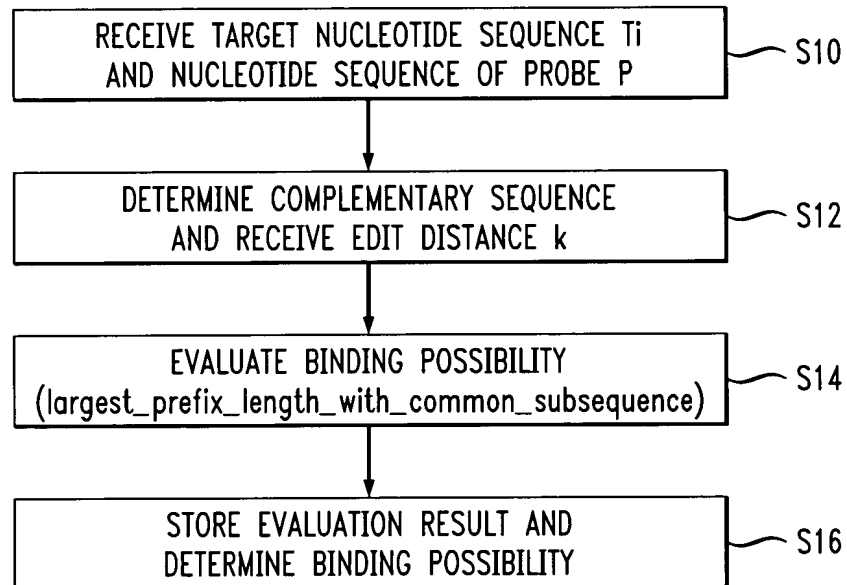


FIG. 4

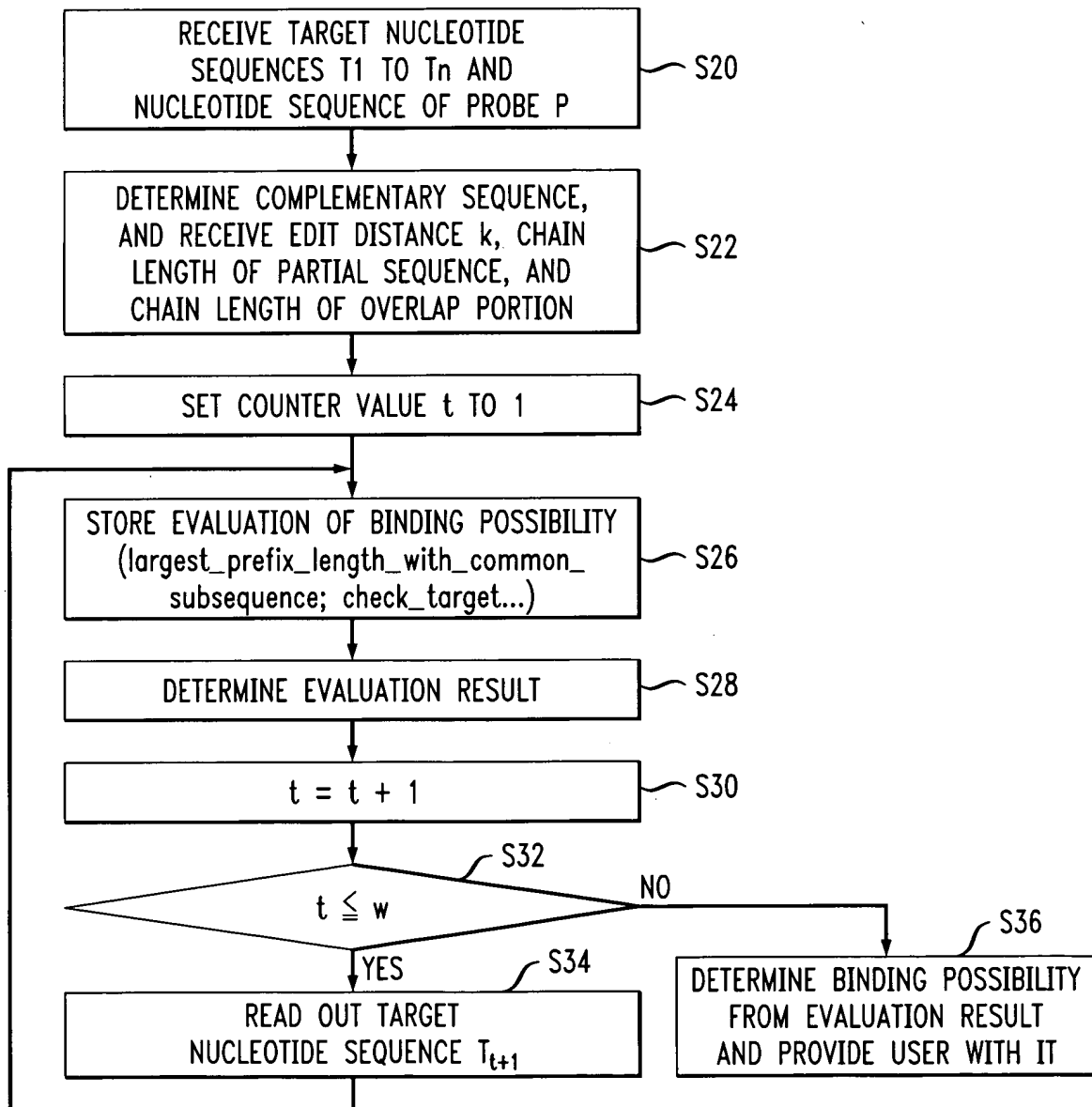


FIG. 5

function: largest_prefix_with_common_subsequence(T,Q,k)

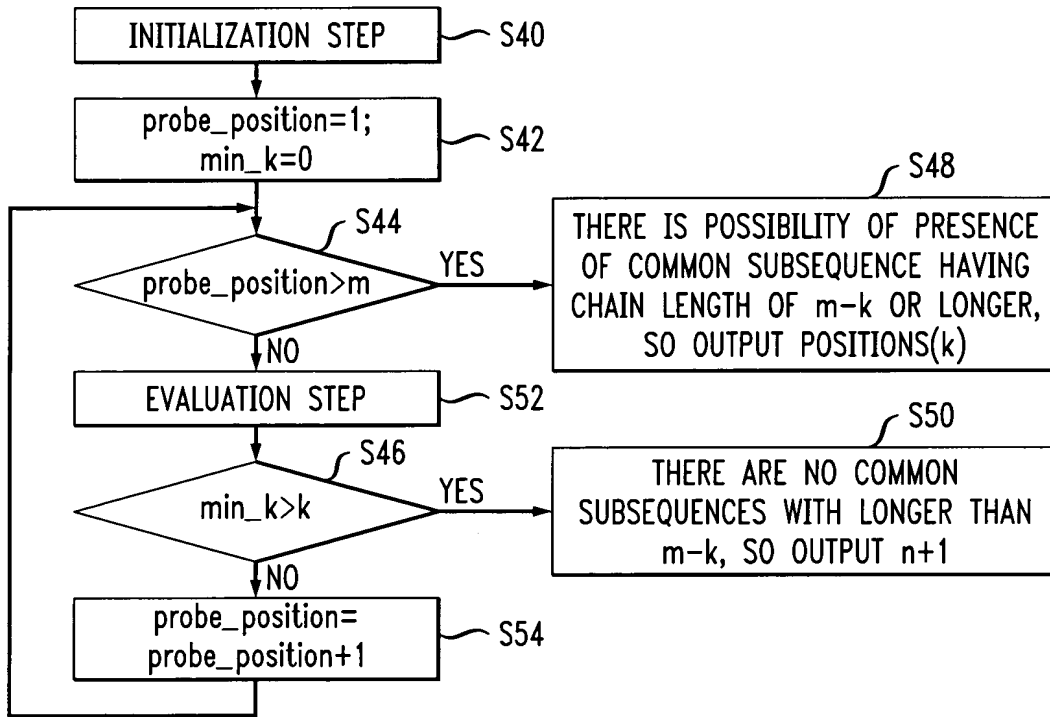


FIG. 6

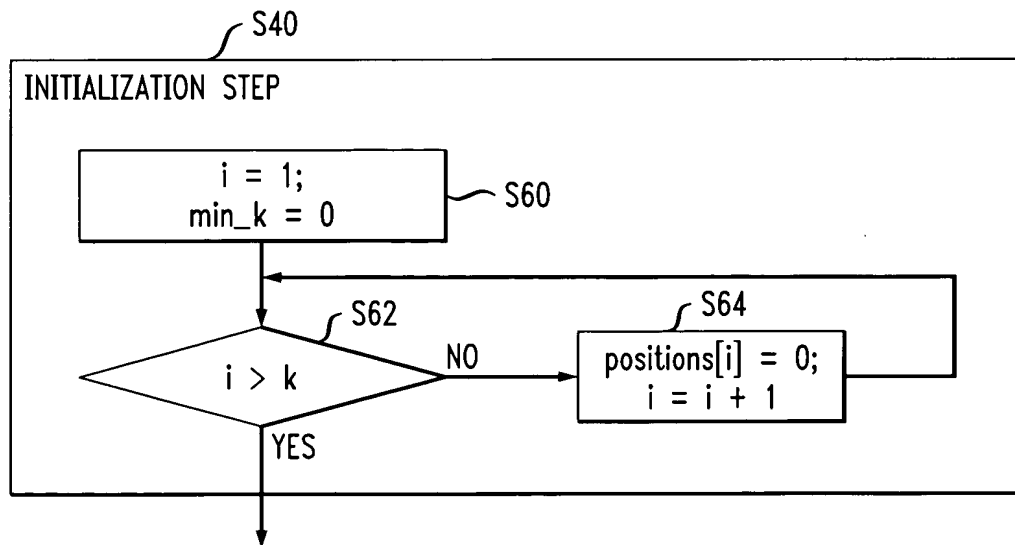


FIG. 7

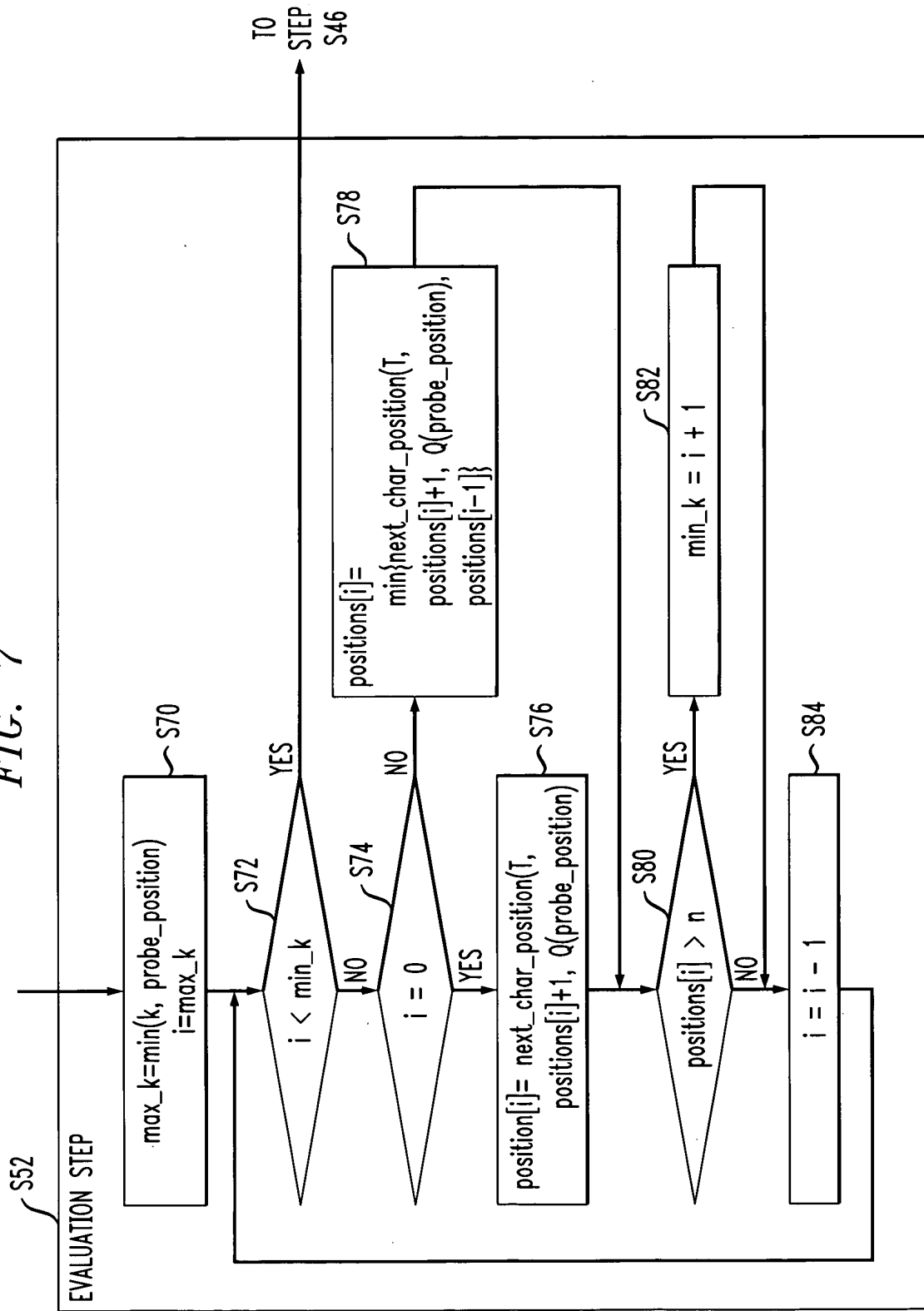


FIG. 8

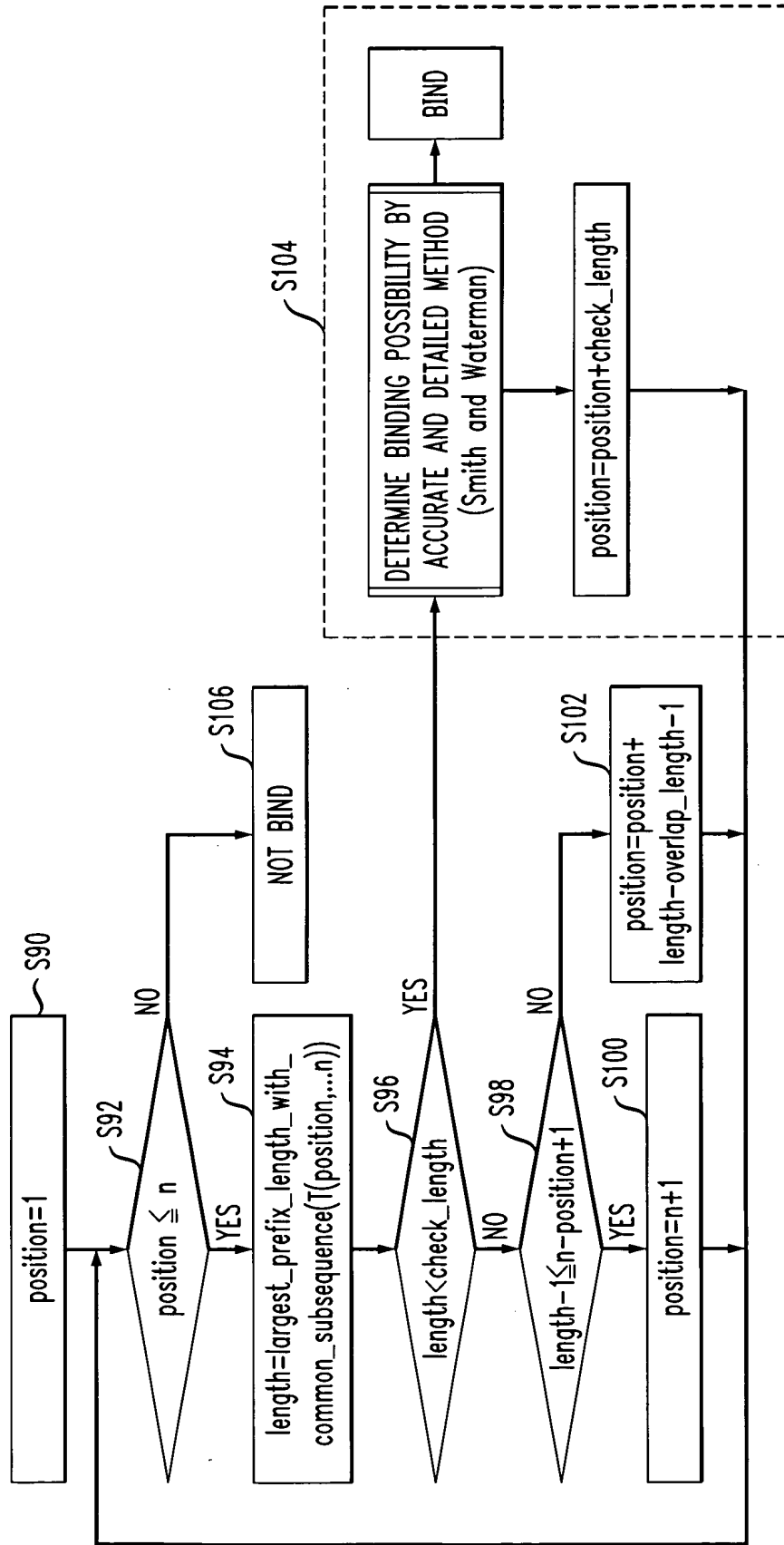


FIG. 9

```
//function largest_prefix_with_common_subsequence

largest_prefix_with_common_subsequence(sequence T[1..n], sequence Q[1..m], k) {
  for (i=0;i<=k;i++) positions[i] = 0;
  min_k = 0;
  for (probe_position=1; probe_position<=m; probe_position++) {
    max_k = min {k, probe_position};
    for (i=max_k; i>=min_k ;i--) {
      if (i==0 {
        positions[i] = next_char_position(T, positions[i]+1,
Q[probe_position]);
      } else {
        positions[i] = min { next_char_position(T, positions[i]+1,
Q[probe_position]),
        positions[i-1] }
      }
      if (positions[i] > n) {
        min_k = i+1;
      }
    }
    if (min_k > k) {
      ① Absence of common subsequence with length of m-k or longer
      return m+1;
    }
  }
  ② Presence of common subsequence with length of m-min_k or longer
  return positions(k)
}
```


FIG. 10

```
//function check_target

check_target(sequence T[1..n], sequence Q[1..m], k, overlap_length, check_length) {
    position=1;
    while(position <= n) {
        length = largest_prefix_length_with_common_subsequence(
            T[position..n], Q[1..m], k);
        if (length < check_length) {
            if (check_exactly(
                T[position..(min(n, position+check_length))], Q, k)) {
                position = position + check_length;
            } else {
                return ("T binds to P")
            }
        } else if (length - 1 <= n - position + 1){
            position = position + length - overlap_length - 1;
        } else {
            position = n+1;
        }
    }
    return ("T does not bind to P");
}
```

FIG. 11

	1	2	3	4	5	6	7	8
POSITIONS[0]	2	3	5	-	-	-	-	-
POSITIONS[1]	0	1	3	5	6	7	8	-
POSITIONS[2]	-	0	1	3	5	6	7	8
POSITIONS[3]	-	-	0	1	3	5	6	7

FIG. 12

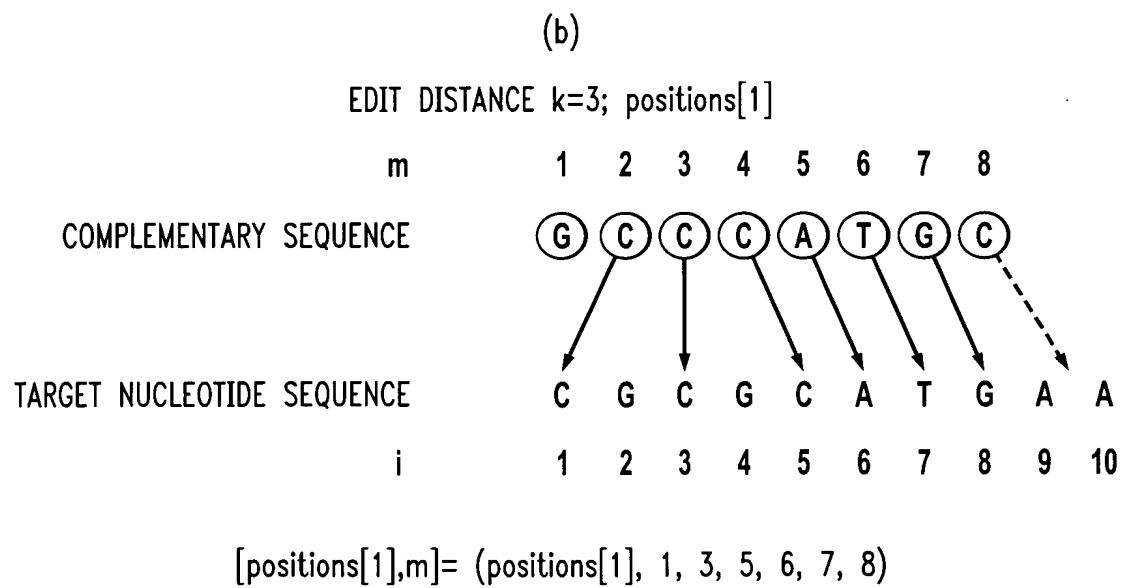
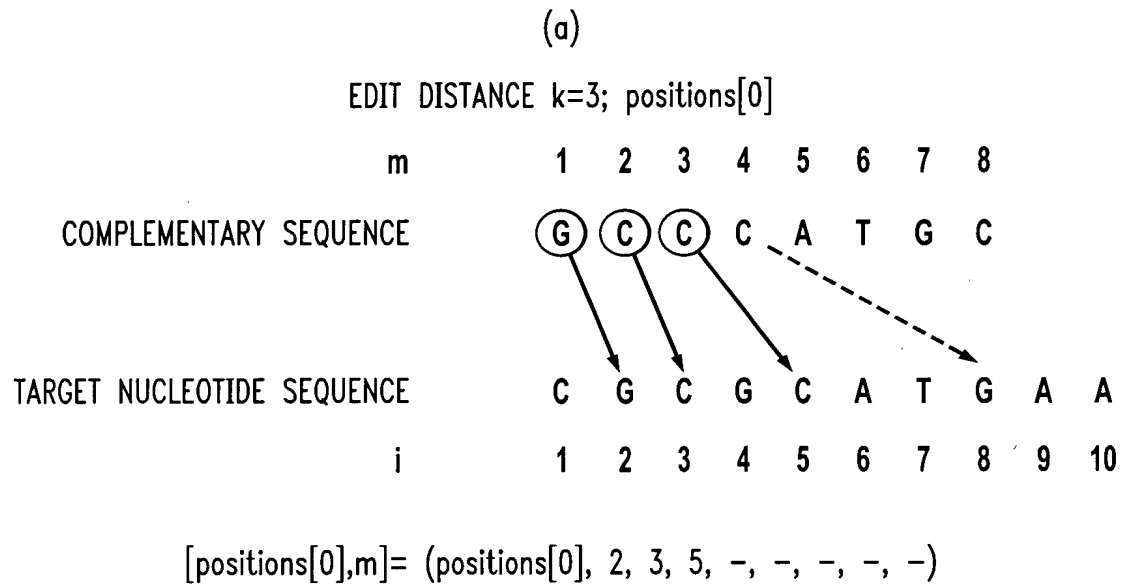


FIG. 13

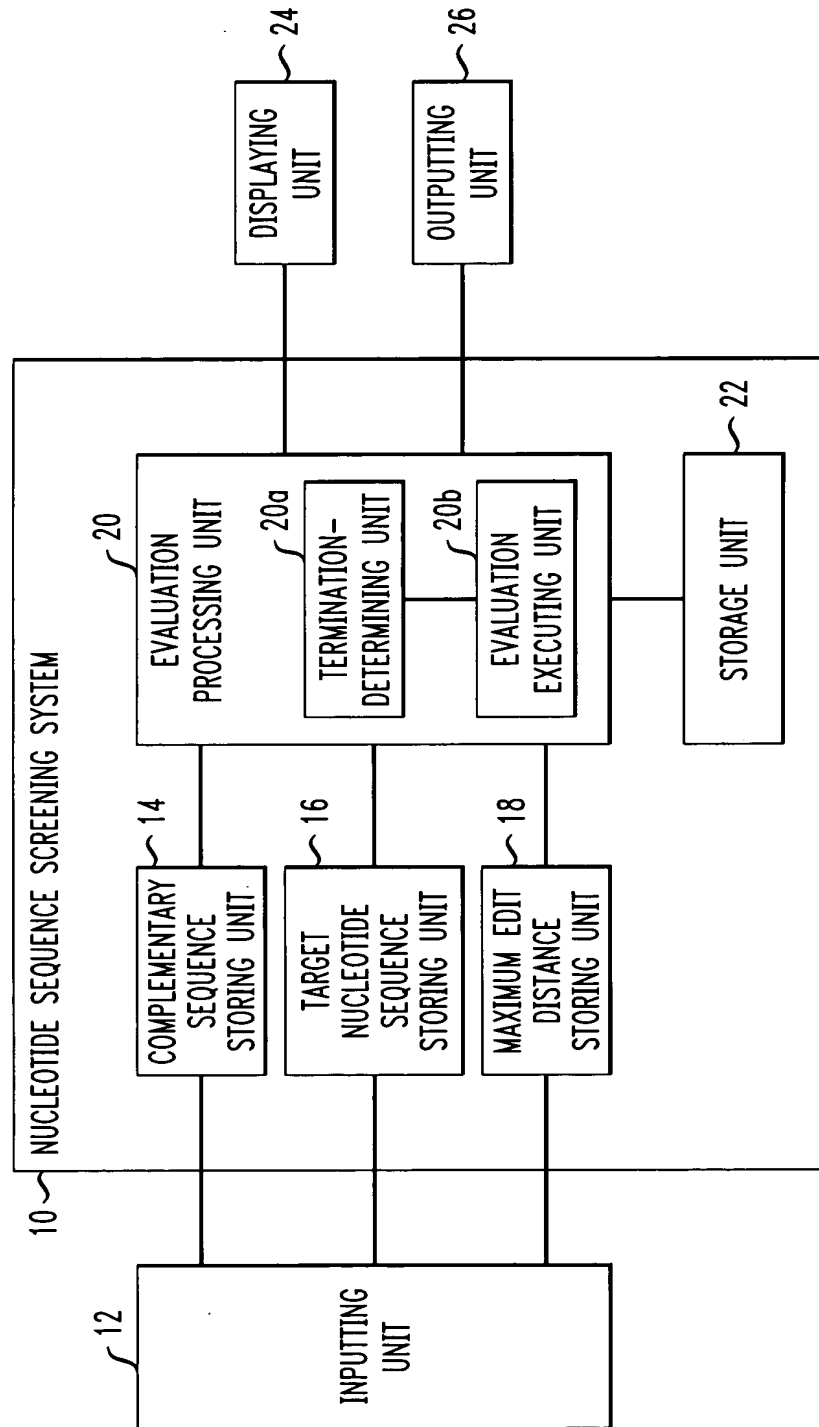


FIG. 14

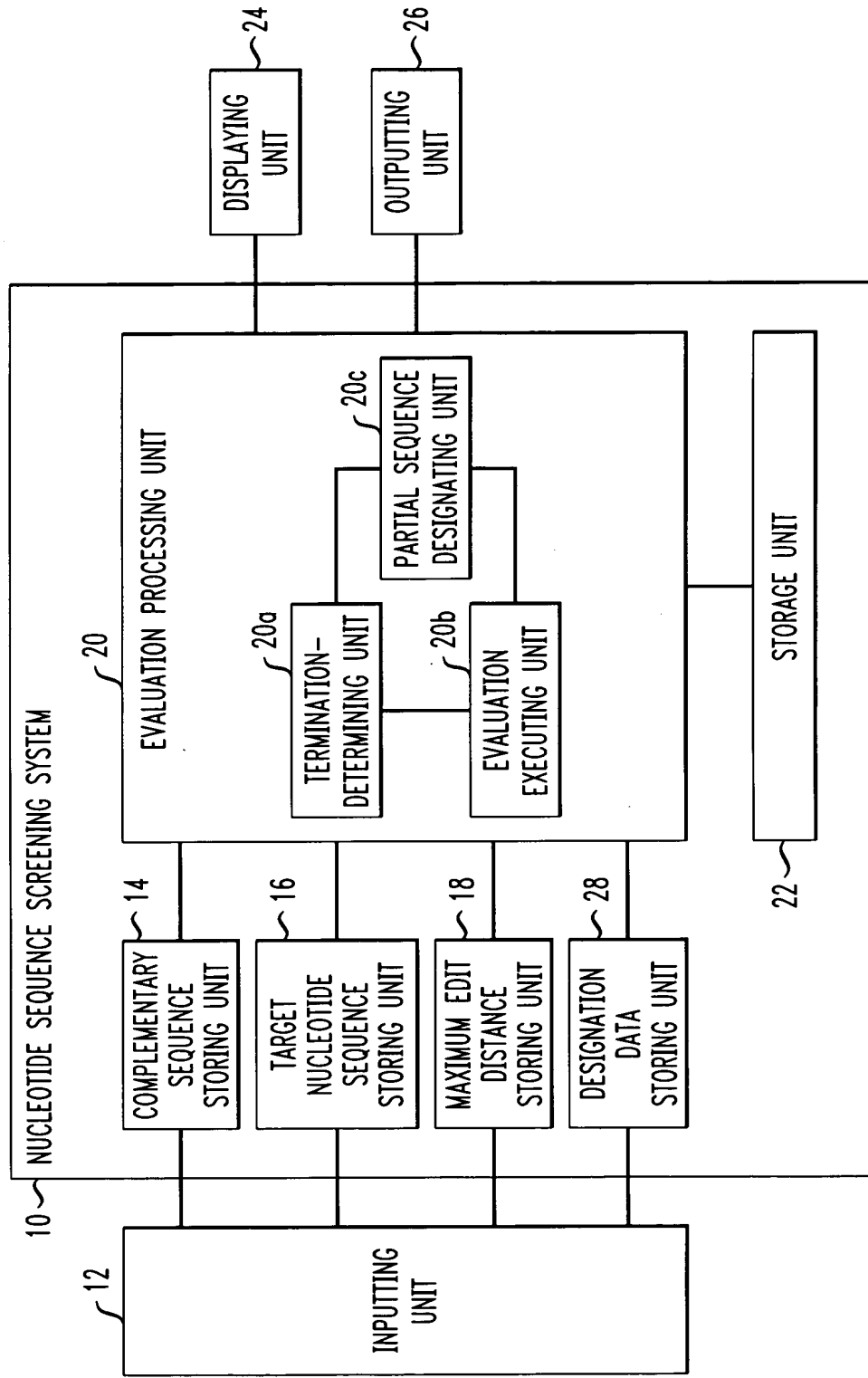


FIG. 15

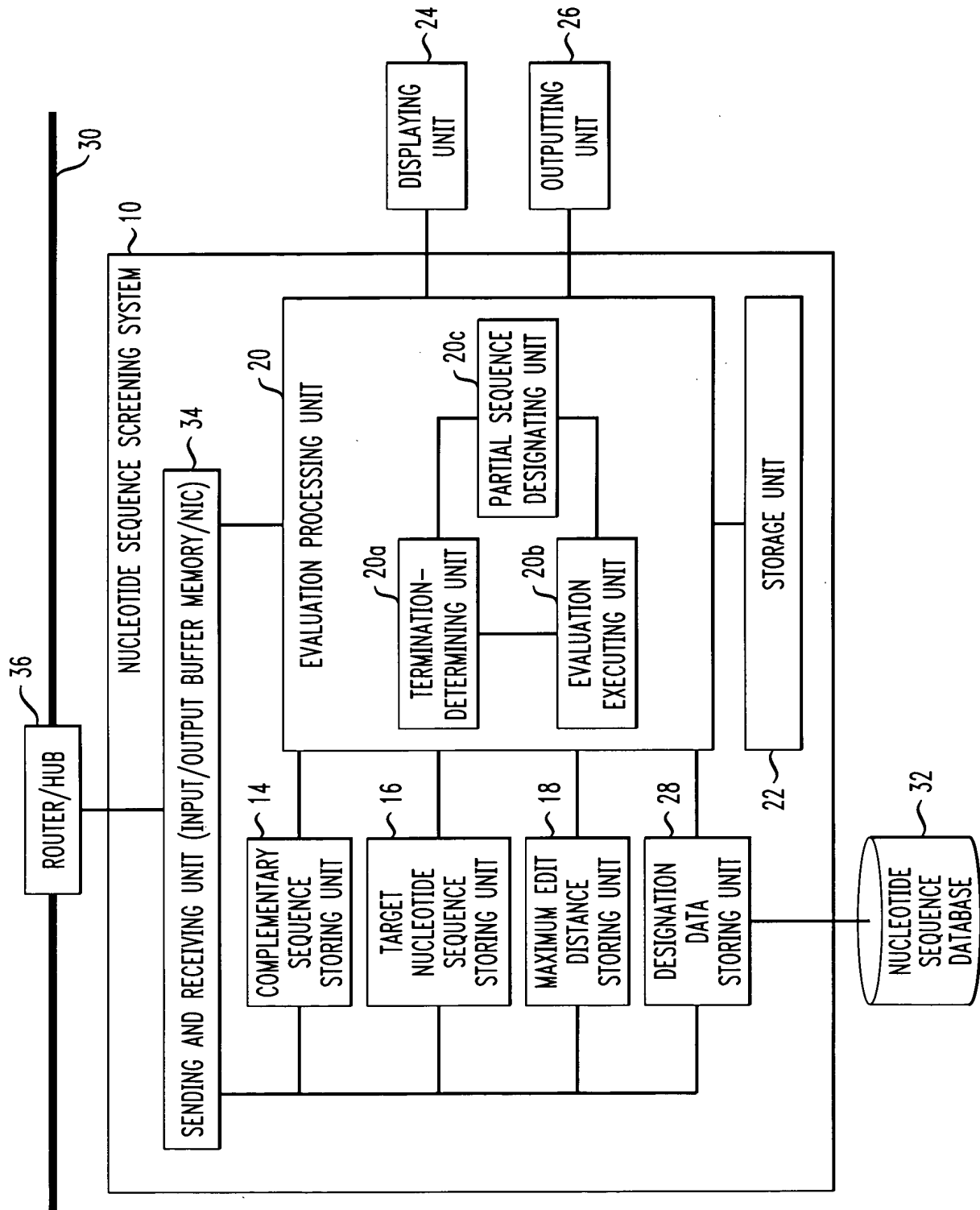


FIG. 16

EXAMPLE				COMPARATIVE EXAMPLE
RESEMBLANCE				Smith-Waterman
0.80	0.85	0.90	0.95	----
405.47s	284.12s	136.20s	45.05s	1108.33s

FIG. 17

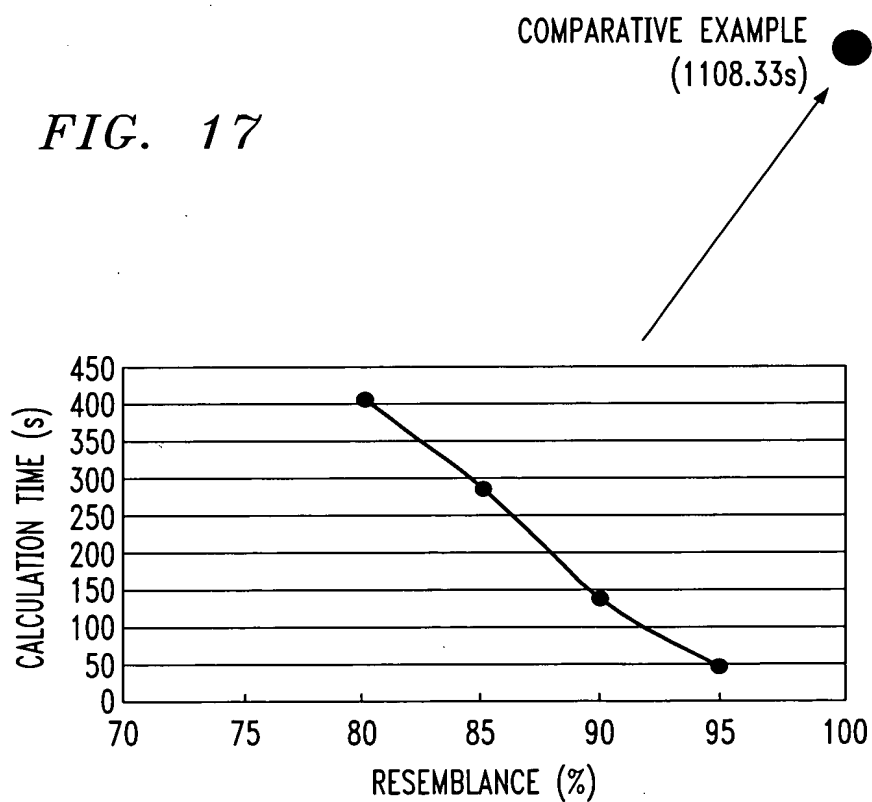


FIG. 18

